

REMARKS

Claims 1 and 3 through 15 are in the application, with Claims 1 and 9 through 14 having been amended, and with Claim 2 having been cancelled. Claims 1, 9 and 14 are the independent claims herein. No new matter has been added. Reconsideration and further examination are respectfully requested.

Claim Rejections Under 35 U.S.C § 112, Second Paragraph

Claims 9 through 13 were rejected for alleged indefiniteness. Claims 9 and 12 have been amended as shown above in an attempt to clarify the limitations noted in the Office Action. If these amendments are not deemed sufficient, Applicant respectfully requests any suggestions the Examiner may have for addressing the §112 rejection of Claims 9 and 12.

Claims 10, 11 and 13 were rejected for their respective recitations of “substantially zero”, “substantially infinite”, and “substantially zero”. Each of Claims 10, 11 and 13 has been amended to remove the noted claim language. Claim 10 has been amended to recite “wherein the first capacitor contributes negligibly to a total capacitance of the plurality of capacitors if the first capacitor switch is set to the first threshold voltage”. This recitation, as well as the recitations of amended Claims 11 and 13, is supported at least by the embodiment described at page 3, lines 23 through 27 of the present specification.

With regard to the term “negligibly” used in amended Claim 10, M.P.E.P §2173.05(b) notes: “[t]he fact that claim language, including terms of degree, may not be precise, does not automatically render the claim indefinite under 35 U.S.C. 112, second paragraph...Acceptability of the claim language depends on whether one of ordinary skill in the art would understand what is claimed, in light of the specification.” Applicant submits that, in light of the specification and the known characteristics of capacitors and transistors, one of ordinary skill in the art would understand the metes and bounds of amended Claim 10.

Withdrawal of the rejections under §112, second paragraph, is respectfully requested.

Claim Rejections Under 35 U.S.C § 103(a)

Claims 1 through 4, 7, and 8 were rejected under 35 U.S.C § 103(a) over U.S. Patent No. 6,574,288 (Welland), U.S. Patent No. 5,600,187 (El-Hamamsy), and U.S. Patent No. 4,259,746

(Sandstedt); Claims 5 and 6 were rejected over Welland, El-Hamamsy, Sandstedt, and U.S. Patent No. 6,754,147 (Hsu); Claim 14 was rejected over U.S. Patent No. 4,893,087 (Davis), Welland, El-Hamamsy, Sandstedt, and U.S. Patent No. 6,552,569 (Wert); and Claim 15 was rejected over Davis, Welland, El-Hamamsy, Sandstedt, Wert, and U.S. Patent No. 6,621,893 (Elzur). Reconsideration and withdrawal of these rejections are respectfully requested.

Amended independent Claim 1 concerns a circuit including a plurality of capacitors coupled in parallel, a plurality of capacitor switches, each of which is coupled in series with a respective one of the plurality of capacitors, and one or more biasing circuits to independently set each of the plurality of capacitor switches to one of a reset voltage, a first threshold voltage, and a second threshold voltage. The circuit further includes a plurality of control switches, each of the control switches to couple and to decouple a respective one of the plurality of capacitor switches to and from a control voltage, and one or more control biasing circuits to set the control voltage to one of the reset voltage, the first threshold voltage, and the second threshold voltage.

FIG. 1 illustrates one embodiment of amended independent Claim 1. Specifically, FIG. 1 shows a plurality of capacitors 110, 111, 112 coupled in parallel, a plurality of capacitor switches 120, 121, 122, each of which is coupled in series with a respective one of the plurality of capacitors, and one or more biasing circuits (131, 132, 133), (141, 142, 143), and (151, 152, 153) to independently set each of the plurality of capacitor switches to one of a reset voltage V_R , a first threshold voltage V_L , and a second threshold voltage V_H . Also shown are a plurality of control switches 130, 140, 150, each of the control switches to couple and to decouple a respective one of the plurality of capacitor switches to and from a control voltage V_{control} , and one or more control biasing circuits 161, 162, 163 to set the control voltage to one of the reset voltage V_R , the first threshold voltage V_L , and the second threshold voltage V_H . As described in the present specification, embodiments such as circuit 100 may provide a capacitance at node A that may be smoothly varied across a large range in response to a control signal and without significantly changing a Quality factor of a circuit that is coupled to node A.

The cited art is not seen to disclose or to suggest the foregoing features of amended independent Claim 1. For example, FIG. 7 of Welland was cited as reading on the claimed plurality of capacitors coupled in parallel and plurality of capacitor switches, each of which is coupled in series with a respective one of the plurality of capacitors. Further, elements of El-Hamamsy were cited as disclosing one or more biasing circuits to independently set each of the

plurality of capacitor switches to one of a reset voltage, a first threshold voltage, and a second threshold voltage. Finally, Sandstedt was apparently cited as disclosing a plurality of control switches, each of which is to couple and to decouple a respective one of the plurality of capacitor switches to and from a control voltage.

Even if each of the above art citations is appropriate, which is not conceded, Applicant notes that the art of record would still fail to disclose or to suggest the claimed one or more control biasing circuits to set the control voltage to one of the reset voltage, the first threshold voltage, and the second threshold voltage. This limitation was previously submitted in now-cancelled Claim 2, and was rejected in view of the elements of El-Hamamsy mentioned above. In other words, elements of El-Hamamsy were cited as disclosing the claim limitation of one or more biasing circuits to independently set each of the plurality of capacitor switches to one of a reset voltage, a first threshold voltage, and a second threshold voltage, and the identical elements were cited as disclosing the claim limitation of one or more control biasing circuits to set the control voltage to one of the reset voltage, the first threshold voltage, and the second threshold voltage.

Applicant believes that these elements of El-Hamamsy cannot properly be cited as disclosing the claimed one or more biasing circuits and the claimed one or more control biasing circuits. Moreover, El-Hamamsy cannot be seen to disclose or to suggest one or more biasing circuits that are coupled to one or more control biasing circuits via a plurality of control switches. No motivation is found in any of the art of record to couple biasing circuits and control biasing circuits as described in Claim 1. Therefore, the art of record, in any permissible combination, is unable to provide the advantages of some embodiments of Claim 1.

Amended independent Claim 1 is therefore believed to be in condition for allowance. Amended independent Claim 14 concerns a system including the circuit of Claim 1 and is therefore also believed to be allowable. Withdrawal of the outstanding rejections under §103 is respectfully requested.

CONCLUSION

The outstanding Office Action presents a number of characterizations regarding each of the applied references, some of which are not directly addressed herein because they are not related to the rejections of the independent claims. Applicant does not necessarily agree with the characterizations and reserve the right to further discuss those characterizations.

For at least the reasons given above, it is submitted that the entire application is in condition for allowance and such action is respectfully requested at the Examiner's earliest convenience. Alternatively, if there remains any question regarding the present application or any of the cited references, or if the Examiner has any further suggestions for expediting allowance of the present application, the Examiner is cordially requested to contact the undersigned via telephone at (203) 972-0049.

Respectfully submitted,

August 27, 2004
Date



Nandu A. Talwalkar
Registration No. 41,339
Buckley, Maschoff & Talwalkar LLC
Attorneys for INTEL Corporation
Five Elm Street
New Canaan, CT 06840
(203) 972-0049